

## ABSTRACT OF THE DISCLOSURE

A varactor is provided. The varactor includes a second type substrate, two gate structures, a first type doped region and a second type doped region. The two gate structures are disposed over the substrate, and each of the gate structures includes an  
5 inter-gate dielectric layer and a gate conductive layer. The first type doped region is disposed in the substrate between the two gate structures. The second type doped region is disposed in the substrate at a side of the two gate structures apart from the first type doped region. The first type doped region is electrically connected to a first electrode, and second type doped region is electrically connected to a second electrode,  
10 and the two gate structures are electrically connected to the first electrode or the second electrode.